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A PLAN DESIGNED TO FURNISH MORE DETAILED INFORMATION AS TO THE DISTRIBUTION OF MEMBERS OF SIGMA XI

The rapid growth of the Society of Sigma Xi and the extension of its chapters to institutions differing greatly from each other in their facilities and aims, has resulted in a desire for a clearer definition of the requirements for admission. Where the membership of an organization is small and characterized by common interests of a professional and perhaps also of a social nature, there is little need for defining the status of the candidate for admission or of those who are already members. No matter how abstract the aims of a small group may be they acquire a coherence and unity from the greater homogeneity of its constituents, which it is futile to expect in a larger organization, even though the latter expresses its purposes much more concretely. If in addition to a large increase in membership there is a marked extension of the limits of those activities which furnished the original motives for organization, the need for a greater definiteness becomes acute.

Scientific methods are being pushed into many new lines of endeavor—industrial, philanthropic, economic, educational, etc., and with this extension we have a corresponding increase in the subject-matter of research investigation. Not only is the subject-matter increased, but the traditional criteria for evaluating research, are undergoing modification. Many of the members of Sigma Xi, especially those who enter by way of the Engineering schools, engage in industrial research which precludes publication and which tends to become separated from the traditional technical university research. Again, the advent of the Experiment Station has called out a class of men for whom research is almost compulsory and perhaps more directed toward the solution of merely local problems than is university research. While in industrial research the possibilities for collegiate recognition are practically negligible, in Experiment Station research every opportunity is given the investigator to publish his results. Of course "Science is science" no matter where it may be found, yet we cannot escape the fact that the methods

of presenting the material in an Experiment Station Bulletin are different from the methods which govern the presentation of research carried on in the regular university laboratory.

The intensive nature of research investigation tends to beget indifference toward lines of work which only remotely bound our prevailing interests. Not consciously perhaps, but whether consciously or unconsciously, the indifference so engendered soon manifests in a decreased participation in the affairs of the society. Considerations of this nature make the meaning of the term research vague and ambiguous. If the keynote of election to the Society of Sigma Xi is to be the "ability to do research", it is imperative that our conceptions of research become more objectified.

Toward this end the writer thought it might be profitable for the Society itself to undertake a piece of research which would have for its aim a statistical study of the distribution of its membership with respect to a few of the principles which are characteristic of Sigma Xi. Questions of administrative policy are difficult to handle when the actual composition of the society is indifferently known, and any definition of the requirements for admission should also consider the actual conditions as they at present exist. Any attempt at regulation must fail if these requirements are foreign to the spirit of the majority of the members. There must be a compromise between the extreme conditions. In the absence of such a compromise dissatisfaction and eventual dissolution may be confidently predicted. Every chapter has its own local problems and these seldom, if ever, coincide with the problems which the central committee must face. As a result, the recommendations of the central committee seem to be more or less foreign to every chapter unless the condition of the society as a whole is at the same time presented. The more comprehensive such an investigation may be the more intelligently can the recommendations of the national body be discussed, and the greater is the probability that some definite recommendations will be adopted. To learn that a certain percentage of Sigma Xi members are engaged in active research at this time may be worth the effort necessary to establish this fact; however, a classification shows in greater detail just how the members are distributed over the different fields of research would lend itself better for interpretative purposes.

If it were possible to confidently estimate the value of a given investigation, either with respect to its significance for pure science or to the extent to which it will benefit humanity generally the problem of classifying research would be simple. Unfortunately,

however, original investigations are of such a nature that many years may elapse before their real importance is recognized. Even then the recognition is not by any means unanimous and the controversy is greatest between the very men best qualified to determine their value. In view of these considerations it would perhaps be safest not to adopt a classification which carried with it any direct implications as to the scientific merit of its various classes. As an alternative the writer suggests a classification based upon the genetic development of research investigation. The earliest form of research was carried on by the universities as more or less supplementary to their prime function of teaching. The second stage was the development of the Experiment Station in which research was made the sole desideratum. Its investigators, however, are still more or less closely connected with the university. The third stage is that of industrial research in which there is no longer any direct connection with the university.

Using this genetic principle as a basis for classifying original investigators, we have—1. University research, 2 Experiment Station research, 3 Industrial research. Such a three-fold classification makes no attempt at evaluating the merits of the various investigations and at the same time the three groups are fairly well defined. This may not be the best classification; others could be suggested, but if the term research is to have a more concrete objective reference, some kind of differentiation should be made. Given some form of classifying the various kinds of research the question arises, what percentage of the members of SigmaXi belong to the various groups. For purposes of comparison the investigation might include five-year periods. This would indicate the tendencies which become manifest in the election of new members, and whether some groups are growing faster than others. The following are a few items which might also be classed as desirable information:

Percentage of the members at present engaged in research of any kind; percentage who have done no research since election; percentage holding positions in (1) University, (2) Experiment Stations, (3) Industrial establishments; percentage of members who did graduate work after election to the extent of securing their Ph.D. The representation of the Sigma Xi members with respect to their academic or technical antecedents (Arts and Science, Agriculture, Engineering, Medicine, etc.). This investigation could be conducted by a questionnaire where the available records are inadequate. The questionnaire could of course be much more comprehensive than is indicated in the preceding paragraphs. It would perhaps

also be better to restrict the investigation to a few representative institutions. Partly because the expense would be less, and also because the men who would be willing to devote their time to such an investigation would be limited.

It is often objected that it is impossible to clearly define such a purely personal and subjective thing as an ideal, or if it were possible that it would be undesirable. An investigation of the nature outlined does not attempt this. It aims merely to supply the members of the Sigma Xi with the actual facts as they exist. How these facts will be interpreted must, of course, be left to the individual. Intellectual agreement is no more possible than is an agreement on religion. We can, however, approach more and more closely to some acceptable compromise, and the investigation herein outlined is only a device by means of which the conditions for intelligent discussion are made more favorable. Certainly more so than if we must rely solely upon ill-defined and abstract principles of subjective evaluation toward which the investigator turns with reluctance because the very nature of his work requires him to have clear and clean-cut ideas.

The report of such an investigation in the hands of a committee would enable them to make recommendations as to the desirability or undesirability of standardizing the requirements for admission to the society, and if the members also have such a report before them the recommendations of the committee can be much more effectively discussed.

Desirable as the "platonic atmosphere" may be at banquets and initiations, it is rather ineffective when administrative policies are to be determined.

A. P. WEISS,
Ohio State University.

NOTE:

The Report of the Ohio Chapter at the Cleveland Banquet (see the Quarterly, p. 9) emphasized the importance of ascertaining what percent of the members of Sigma Xi actually do any research work after graduation. Professor Weiss was asked to formulate some plan for the work, and in response to this request outlines in this number the method in mind.